WHAT IS CLAIMED IS:

1. An implantable hearing device comprising:

a transducer which produces vibrations in response to an electrical signal; and

a connecting member having a first end connected to the transducer and a second end connectable to a component of a human ear, wherein the transducer and the component of a human ear are elastically coupled by the connecting member.

2. The apparatus of claim 1, wherein said connecting member comprises a resilient biasing mechanism.

3. The apparatus of claim 1, wherein said connecting member comprises a urethane strip.

4. An implantable hearing device, which is coupled between a tympanic membrane and an oval window of an ear of a human subject, comprising:

an amplifier;

a first transducer electrically coupled to said amplifier for converting mechanical vibrations to electrical signals;

a second transducer electrically coupled to said amplifier for converting electrical signals to mechanical vibrations;

a first connecting member having a first end connected to the first transducer and a second end connected to the tympanic membrane, wherein said first transducer and said tympanic membrane are elastically coupled by said first connecting member;

a second connecting member having a first end connected to said second transducer and a second end connected to said oval window, wherein said second transducer and said oval window are elastically coupled by said second connecting member.

4. 5. The apparatus of claim 3 4, wherein said first connecting member creates a tensive force between the tympanic membrane to said first transducer when coupled therebetween.

5. 6. The apparatus of claim 3 4, wherein said second connecting member creates a tensive force between said second transducer to the oval window when coupled therebetween.

7. The apparatus of claim 4, wherein said first and said second connecting members each comprise a resilient biasing mechanism.

8. The apparatus of claim 4, wherein said first and said second connecting members each comprise a urethane strip.

9. The apparatus of claim 4, wherein said first and said second connecting members each comprise at least one set of angled bends.

10. An implantable hearing device connectable to a component of an ear of a human subject, comprising:

a hearing device for improving hearing of the human subject; and

means for elastically coupling said hearing device to the component of the ear.

11. The apparatus of claim 10, wherein said means for elastically coupling creates a tensive force between said implantable hearing device and the component of the ear.

12. The apparatus of claim 10, wherein said means comprises a resilient biasing mechanism.

13. The apparatus of claim 10, wherein said means comprises a urethane strip.

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14. A method of improving hearing in a human subject comprising:

implanting an implantable hearing device into a mastoid bone of the human subject; and

elastically coupling said implantable hearing device to a vibratory component of the ear using a connecting member.

SUB A4

15. A method of improving hearing in a human subject, an ear of the human subject having a tympanic membrane and an oval window, comprising:

implanting an implantable hearing device in a mastoid bone of the human subject, said implantable hearing device comprising

(a) an amplifier,

(b) a first transducer electrically coupled to said amplifier, and

(c) a second transducer electrically coupled to said amplifier;

elastically coupling the tympanic membrane and said first transducer using a first compliant connecting member; and

elastically coupling said second transducer and the oval window using a second compliant connecting member.

16. A method of manufacturing a hearing device, comprising:

providing an amplifier;

electrically coupling a first transducer to said amplifier;

electrically coupling a second transducer to said amplifier;

mechanically coupling a first compliant connecting member to said first transducer; and

mechanically coupling a second compliant connecting member to said second transducer.

17. The method of claim 16, wherein said first and said second compliant connecting members each create a tensive force.

18. The method of claim 16, wherein said first and said second compliant connecting members each comprise a spring.

19. The method of claim 16, wherein said first and said second compliant connecting members each comprise a urethane strip.

20. In an implantable hearing device of the type coupled to a component of an ear of a human subject, the improvement comprising:

a connecting member adapted to elastically couple the implantable hearing device to the component of the ear.

21. In an implantable hearing device adapted to be coupled between a tympanic membrane and an oval window of an ear of a human subject and having an amplifier, a first transducer electrically coupled to the amplifier, and a second transducer electrically coupled to the amplifier, the improvement comprising:

a first connecting member adapted to elastically couple the tympanic membrane to said first transducer; and

a second connecting member adapted to elastically couple said second transducer to the oval window.

22. In an implantable hearing device adapted to being coupled to a component of the middle ear of a human subject, comprising an electromagnetic unit having a diaphragm, the improvement comprising:

a connecting member adapted to elastically couple a component of the middle ear to said diaphragm.

13. 12
23. The improved hearing device of claim 22, wherein the connecting member is adapted to be coupled to the diaphragm and the structure of the middle ear using magnetism.

14. 12
24. The improved hearing device of claim 22, wherein the implantable device is hermetically sealed.

15.
25. An implantable hearing device of the type coupled to one or more ossicles of an inner ear of a human subject, comprising:

a housing;

an electromagnetic unit having a magnet disposed inside said housing and a coil surrounding a portion of said housing;

a diaphragm mechanically coupled to said electromagnetic unit, wherein motion of the diaphragm is proportional to a signal applied to said electromagnetic unit; and

a connecting member adapted to elastically couple said diaphragm to the one or more ossicles of the human ear.

16. 15
26. The improved hearing device of claim 25, wherein the implantable hearing device is hermetically sealed.

17.
27. A method of improving hearing in a human subject, an ear of the human subject having a middle ear structure, comprising:

implanting an implantable hearing device in a mastoid bone of the human subject, said implantable hearing device comprising:

an electromagnetic unit having a diaphragm mechanically driven by said electromagnetic unit; and

elastically coupling said diaphragm and a component of the middle ear structure using a first connecting member.

~~28~~ 18. The method of claim ~~27~~ 17, wherein the implantable hearing device is hermetically sealed.

29. A method of manufacturing a hearing device, comprising:

providing an electromagnetic unit comprising:

a housing;

a magnet disposed inside said housing;

a coil surrounding a portion of said housing

a diaphragm mechanically coupled to said magnet, wherein motion of the diaphragm is substantially proportional to a signal applied to said electromagnetic unit; and

mechanically coupling a connecting member to said diaphragm.

30. The method of claim 29, further comprising encapsulating the electromagnetic unit such that the electromagnetic unit is hermetically sealed.

~~31~~ 19. An implantable hearing device adapted to being coupled to one or more ossicles of an inner ear of a human subject, comprising:

a coil;

a compliant connecting member adapted to elastically couple said coil to a magnet, the magnet being coupled to the one or more ossicles of the human ear.

~~32~~ 20. The hearing device of claim ~~31~~ 19, wherein the compliant connecting member comprises a keeper/spring device.

~~33~~ 21. A method of improving hearing in a human subject, an ear of the human subject having a middle ear structure, comprising:

implanting a magnet on a component of the middle ear structure;

elastically coupling the magnet to a first portion of a connecting member; and

elastically coupling a coil device to a second portion of said connecting member.

~~34~~ 22. The method of claim ~~33~~ 21, wherein the connecting member comprises a keeper/spring device.